

**WHAT IS CLAIMED IS:**

1. A brachytherapy applicator chuck, wherein said chuck comprises a proximal end and a distal end, said chuck defining a channel extending between said proximal end and said distal end, and wherein said chuck is adapted to contain a needle and a septum within said channel.
2. The brachytherapy applicator chuck of claim 1, wherein said septum comprises an elastomeric material.
3. The brachytherapy applicator chuck of claim 2, wherein said elastomeric material comprises silicone.
4. The brachytherapy applicator chuck of claim 1, wherein said chuck comprises plastic.
5. The brachytherapy applicator chuck of claim 1, wherein said chuck is disposable.
6. The brachytherapy applicator chuck of claim 1, wherein said channel further is configured to contain a radiation shield.
7. The brachytherapy applicator chuck of claim 1, wherein said chuck defines a seed magazine well and a seed magazine retention structure.
8. The brachytherapy applicator chuck of claim 1, wherein said proximal end is configured to hold an insert.
9. The brachytherapy applicator chuck of claim 8, further comprising said insert.
10. The brachytherapy applicator chuck of claim 9, wherein said insert is metal or high melting point plastic.
11. The brachytherapy applicator chuck of claim 9, wherein at least a portion of said insert has a cross-sectional diameter essentially the same as the cross-sectional diameter of said proximal end.

12. The brachytherapy applicator chuck of claim 1, wherein said chuck defines one or more vents, said vents being configured to permit air or contaminants to exit said channel.
13. The brachytherapy applicator chuck of claim 1, wherein said chuck defines a reservoir.
14. The brachytherapy applicator of claim 13, wherein said chuck defines one or more vents, said vents being configured to permit air or contaminants to enter said reservoir from said channel and to exit said chuck from said reservoir.
15. The brachytherapy applicator chuck of claim 1, wherein said chuck comprises a seed magazine retaining structure.
16. The brachytherapy applicator chuck of claim 15, wherein said seed magazine retaining structure is a cantilever.
17. The brachytherapy applicator chuck of claim 15, wherein said seed magazine retaining structure defines a protrusion, and wherein said protrusion is configured to engage a seed magazine.
18. A brachytherapy applicator comprising a chuck and a chuck housing, wherein said chuck comprises a proximal end and a distal end, said chuck defining a channel extending between said proximal end and said distal end, wherein said chuck is adapted to contain a needle and a septum within said channel, and wherein said chuck housing is configured to engage said chuck.
19. The brachytherapy applicator of claim 18, wherein said chuck further comprises an insert at said proximal end, and wherein said chuck and said chuck housing are connected by a setscrew extending from said chuck housing to contact said insert.
20. The brachytherapy applicator of claim 19, wherein said proximal end defines an opening extending from an exterior surface to said channel, and wherein said setscrew extends through said opening to contact said insert.
21. The brachytherapy applicator of claim 19, wherein said insert is in direct contact with said chuck housing.

22. The brachytherapy applicator of claim 18, further comprising a chuck connection device.
23. The brachytherapy applicator of claim 22, wherein said chuck connection device comprises a proximal portion, a distal portion, and a spring lock.
24. The brachytherapy applicator of claim 22, wherein said chuck connection device is configured to retain a radiation shield.
25. A brachytherapy applicator chuck comprising a needle retention member, wherein said chuck comprises a proximal end and a distal end, said chuck defining a channel extending between said proximal end and said distal end, and wherein said chuck is adapted to contain a needle and a septum within said channel.
26. The brachytherapy applicator chuck of claim 25, wherein said needle retention member comprises a pivot structure, an actuator, and a flex beam.
27. The brachytherapy applicator chuck of claim 26, wherein said flex beam is configured to exert force against said needle.
28. The brachytherapy applicator chuck of claim 26, wherein said flex beam is configured such that it is not stressed when a needle is not present in said chuck.